REMARKS

Careful consideration has been given to the Official Action of October 28, 2003 and reconsideration of the application as amended is respectfully requested.

Figure 7 has been amended by inclusion of the legend "Prior Art".

Claims 3, 17 and 31 have also been amended to overcome the claim rejection under 35 USC ss 112. Claims 69 to 74 have been added. The features of claims 69, 71 and 73 can readily be derived from the specification, for instance at page 9 of the description, in the paragraph from lines 10 to 18. The features of claims 70, 72 and 74 can readily be derived from the specification, for instance at page 9 of the description, in the paragraph from lines 10 to 18, and from Figure 2 itself. Claims 7-9, 21-23, 35-37, 44, 52 and 60 have been indicated as allowable.

The Examiner rejected claims 1 to 6, 10 to 20, 24 to 34, 38 to 43, 45 to 51, 53 to 59 and 61 to 67 as being unpatentable over Moskowitz et al. (US 6,522,767 B1) in view of Applicant Admittance Prior Art (AAPA). With respect, we do not agree with the Examiner's interpretation of the prior art and ask that the Examiner re-considers and withdraws the rejections.

To paraphrase the Examiner's rejection of independent claims 1, 15, 29, 43, 51, 59 and 67, Moskowitz et al. teaches embedding and extracting at least a portion of a digital

watermark in sample data in digital audio data coded using a synthesizer-architecture format, but does not disclose embedding a watermark in articulation parameters of the format. However, AAPA teaches articulation parameters of a synthesizer-architecture format. Thus it would not be obvious to use AAPA's format in addition to Moskowitz et al. watermarking, to render obvious these independent claims.

We disagree with the Examiner's views as to: what is disclosed by Moskowitz et al.; the obviousness of combining the teachings of Moskowitz et al. and AAPA; and what would be obvious from a combination of these two teachings, if it were considered.

Firstly, Moskowitz et al. does not teach the use of a synthesizer-architecture format. We cannot find a single mention of the words "synthesizer" or "wavetable" or of the phrase "wave table" or of the term "WT" or any other teaching that suggests such use. The teaching of Moskowitz et al. is only in respect of a digital sample audio format and, indeed, the schemes illustrated in Moskowitz et al. cannot work on the synthesizer audio format. Synthesizer-architecture formats (such as MIDI) are different from digitally-sampled audio formats (such as WAV). The former formats are written by human beings to teach computers how to play audio, and the main components of synthesizer audio are articulation parameters. On the other hand, the latter are recorded from actual sounds (songs or music) themselves, usually in a studio, and the main components are digital samples. The watermarking method in Moskowitz et al. is only used to embed watermarks into digitally-sampled audio (For example, see Figure 1). It cannot work on synthesizer audio, as the formats are totally different. Thus, even if there were some mention of the synthesizer-architecture format, the skilled person would ignore it as unworkable.

Given that the schemes illustrated in Moskowitz et al. are unworkable on the synthesizer audio format, it could not therefore be obvious to combine what is taught in Moskowitz et al. with AAPA, in the manner indicated by the Examiner, since the skilled person would foresee no useful result from doing so.

Even if the skilled person decided to use the teachings of Moskowitz et al. and AAPA in combination, the result would not be that which is claimed. In particular, there is no teaching or suggestion that might lead to the use of articulation parameters of the synthesizer-architecture format for embedding at least a portion of a watermark. The AAPA merely teaches the existence of the articulation parameters in addition to sample data. Moskowitz et al. teaches feature-based digital watermarking and the portion cited by the Examiner discuses that the watermarking information is not carried in individual samples but is carried in relationships between multiple samples, such as in a waveform shape. However, insertion of watermark information in a waveform shape is not the same as inserting it in articulation parameters of a synthesizer-architecture format.

As such, these independent claims cannot be considered obvious from the prior art mentioned by the Examiner.

As for claims 3, 17 and 31, while the cited portion of Moskowitz et al. (col. 12, lines 45-47) does refer to adaptive differential pulse-code modulation, there is no mention of redundancy as required by these claims.

Claims 4, 18 and 32 require hiding of the digital watermark in the articulation parameters by creating virtual parameters. The Examiner cited Moskowitz et al., at column 10, lines 23 to 28, as teaching this feature, but again we disagree. Leaving aside the fact that there is no teaching in Moskowitz et al. of using articulation parameters, this cited portion also fails to teach the creation of virtual parameters. While we agree that this portion mentions estimating and utilizing parameters to create an optimised "envelope" for insertion of watermarks, given principles of the digitalization of multi-media content, there is no indication that the parameters should be virtual parameters. Examples of multi-media content are given as audio, video and virtual reality, but just because a parameter is derived from the principles of virtual reality, that does not make it a virtual parameter. Given that claims 5, 6, 10, 19, 20, 24, 33, 34 and 38 all rely upon the creation of virtual parameters, these too are also not obvious in view of the disclosure of Moskowitz et al.

The Examiner further cited column 14, lines 26 to 49, as relevant to the feature of claims 6, 20 and 34, but we can see nothing relevant to these claims in the cited portion. These claims require extracting coded bits from watermarked sample data and creating virtual parameters dependent upon the watermarked coded bits sequence. The portion cited by the Examiner makes no mention of extracting anything from watermarked sample data with no indication of creating any parameters dependent upon a watermarked coded bit sequence. Perhaps the Examiner meant some other portion of Moskowitz et al. but the applicant cannot see any portion that might be deemed to show these features.

The Examiner indicated that the additional features of claims 10, 21 to 38 were taught in Moskowitz et al., at column 3, lines 36 to 43. However, this portion of Moskowitz et al. only relates to the encoding of the watermark, which is distinct and different from encrypting the watermark, as is required by these claims.

Claims 12, 26, 40, 48, 56 and 64 require dividing digital audio data, coded using a synthesizer-architecture format, into sample data and articulation parameters. Given that there is no teaching in Moskowitz et al. of using synthesizer-architecture format, there is also no teaching of how to divide it into the required components. Further, what would appear to be taught in Moskowitz et al., column 5, lines 22 to 26, is not a division of a digital signal into sample data and parameters, but a generation of parameters based upon the sample signal (assuming the relationship between multiple samples can be termed "parameters", which is not admitted).

Claims 46, 54 and 62 require decrypting. This is distinct from what is taught in Moskowitz et al., which is decoding. The same is true for claims 47, 55 and 63.

The Examiner objected that claim 68 was unpatentable over Moskowitz et al. in view of applicant admittance prior art (AAPA) and further in view of Rhoads (US 6,411,725 B1).

Again, we respectfully disagree. As is mentioned above, Moskowitz et al. does not teach the use of a synthesizer-architecture format and, more particularly, it does not teach the use of a wavetable audio file.

Claim 68 does not relate specifically to the use of articulation parameters and therefore the point of some of the Examiner's comments is not clear. Moreover, it is not clear to us what features of the prior art the Examiner considers to show a control signal embedded in an audio file to control a number playback, automatically checking the watermark WT file for the control signal to ensure authentication, playing the watermark WT file if the control signal indicates at least one playback remains and decrementing the control signal.

The Examiner's comments suggest these features are taught in Rhoads, at column 6, lines 15 to 19 and column 7, lines 16 to 21. However, this portion of column 6 only refers to a segment of an audio track intended to be played with a corresponding video frame or frame sequence, which may include watermarks that carry one or more pairs of identifiers and locations. The cited portion of column 7 relates to the proposed situation where a watermarking encoder encodes a short title or number and location of marked video objects into a video stream containing the object. The decoding process extracts the title and location information and displays titles at the location of the corresponding video object. To make the display less obtrusive to the playback of the video, the display of the auxiliary information can be implemented using small icons or numbers superimposed on the video during playback, or it can be transmitted to a separate device from the device displaying the video.

Although the portion in column 6 does indeed refer to a segment of the audio track, the cited portion in column 7 refers only to video objects and a video stream. There is no disclosure of numbers per se associated with an audio file. Moreover, the numbers that are mentioned appear to be no more then identifiers, with no relevance whatsoever to the number

of playbacks available. Further, there appears to be no other portion of Rhoads that might teach these features of claim 68.

New claims 69, 71 and 73 relate to the adaptive encoding mentioned in claims 2, 16 and 30. These claims are distinguished over Moskowitz et al., as they require that the adaptive coding is based only on the sample data and the digital watermark to be encoded, while Moskowitz et al. requires the use of both the audio signal and other signals.

From the portions of the prior art cited by the Examiner, we cannot agree that the prior art is relevant as is indicated by the Examiner. Perhaps there are other portions of the prior art that back up the Examiner's rejection and would be more convincing but, while we have looked for these, we cannot find any such portions. Therefore, if the Examiner maintains the rejections, we would be grateful if he would kindly indicate in more detail where all the relevant features in the prior art can indeed be found.

In the absence thereof, allowance of the claims is respectfully submitted

Respectfully submitted,

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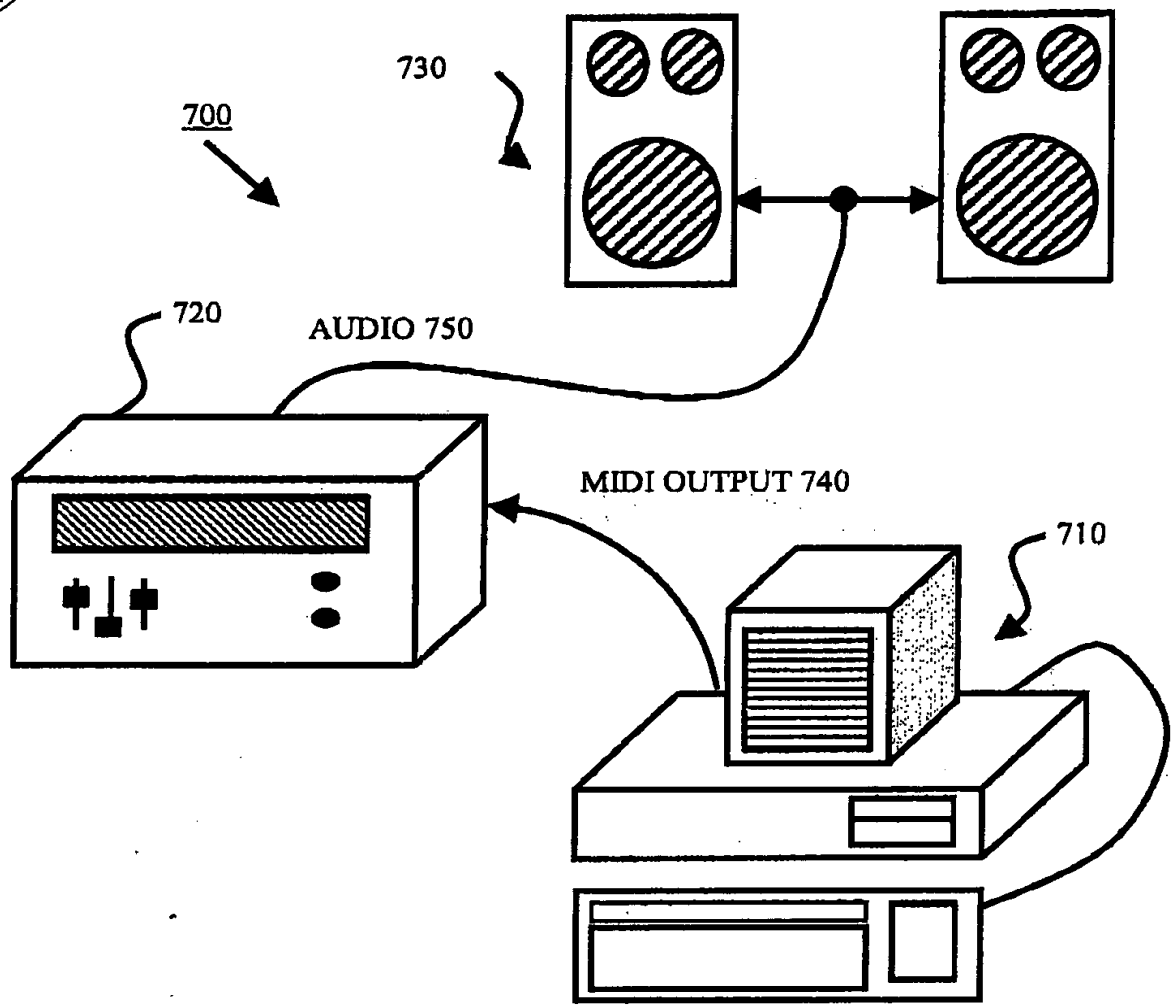

FIG. 7

PRIOR ART